

IN THE CLAIMS:

57. A method for modulating metabolism of nitrogen oxides by varying NO oxidation rate in a heterogeneous medium by changing makeup thereof **characterized in that** the number of phases in this medium and/or one or more volume ratios of phases and/or one or more NO or oxygen partition coefficients between phases are modified in such a way that the values of the expression

$$H = \frac{1 + \sum_{i=1}^{i=n-1} \frac{k_i}{k_n} Q_{NO,i}^2 Q_{O_2,i} x_i - \sum_{i=1}^{i=n-1} x_i}{\left(1 + \sum_{i=1}^{i=n-1} Q_{NO,i} x_i - \sum_{i=1}^{i=n-1} x_i\right)^2 \left(1 + \sum_{i=1}^{i=n-1} Q_{O_2,i} x_i - \sum_{i=1}^{i=n-1} x_i\right)}$$

where H is acceleration of NO oxidation reaction with oxygen in heterogeneous n -phasic system as compared to the aqueous phase, k_i is reaction rate constant in i phase, $Q_{NO,i}$, $Q_{O_2,i}$ is a equilibrated partition coefficient of NO and O_2 in i phase, x_i is a portion of i phase in a total volume, change.

58. The method according to claim 57 **characterized in that** for accelerating NO oxidation with oxygen the changes are carried out in such a way that H value would increase and for slowing down NO oxidation with oxygen the changes are carried out in such a way that the H value would decrease.

59. The method according to claim 57 **characterized in that** for changing NO partition coefficients between the phases the medium

quantitative makeup is changed without changing qualitative makeup and/or without forming novel phases.

62. The method according to claim 57 **characterized in that** the components being introduced comprise solution of a protein that solubilizes the fluorinated organic compound having the value of partition coefficients Q_{NO} and/or Q_{O_2} in a biphasic system with water higher than the maximum value of Q_{NO} and/or Q_{O_2} for arbitrary pair of phases of reaction mixture before introducing.

65. The method according to claim 57 **characterized in that** the components comprising one or more catalysts and/or transnitrosation inhibitors are additionally introduced.

70. Compositions comprising a perfluororganic compound resistant in metabolic reactions and forming with water a heterogeneous mixture said compound being selected from the group including: 0.1 to 90% perfluorohydrocarbons, halo-derivatives of perfluorohydrocarbons, perfluoroalkylamines; 0,08% to 3,3% of one or more compounds belonging to one or more groups of the following list: catalysts or inhibitors of pernitrosification, reducers, scavengers of free radicals; and one or more compounds of the group: SF_6 , perfluorohydrocarbons, halo-derivatives of perfluorohydrocarbons, tertiary perfluoroalkylamines, water up to 100% for modulating metabolism of nitrogen oxides.

76. The compositions according to claim 71 **characterized in that** one or more substituted or unsubstituted mono- and/or di- and/or polyphosphates and/or complexes thereof with magnesium or zinc or

copper or manganese are introduced as catalysts or transnitrosation inhibitors.

77. The compositions according to claim 71 **characterized in that** one or more compounds of the group: thiourea, thioamides, methionine, arginine, peptides and/or acyclic and/or amide derivatives thereof of general formula X-Pept-Y, where X=H or acyl, Y=OH or -NH₂ or NHR or NR₁R₂, Pept=peptide comprising residues of methionine and/or aspartic acid and/or histidine and/or glutamic acid and/or arginine, are introduced as catalysts or transnitrosation inhibitors.

86. A method for effecting organism of a patient in need of correcting metabolism of nitrogen oxides **characterized in that** for modifying NO oxidation rates and subsequent reaction the number of phases is modified in the organism and environment thereof and/or one or more ratios between volumes of the phases and/or one or more partition coefficients of NO or oxygen between the phases in a manner that changes the acceleration of NO oxidation rate in heterogeneous n-phasic system as compared to the aqueous phase.

89. The method according to claim 87 **characterized in that** one or more compounds from the group: a perfluorohydrocarbon, a perfluorohydrocarbon halo-substituted derivative and a tertiary perfluoroalkylamine are introduced as the fluorine comprising water immiscible compounds;

copolymers of ethylene oxide and of propylene oxide and/or phospholipids are introduced as emulsifiers;

and/or glucose and/or fructose and/or saccharose are introduced as carbohydrates for maintaining osmotic pressure;

and/or ascorbic acid and/or salts thereof and/or retinol and/or acyclic derivatives thereof are introduced as reducers;

and/or one or more substituted or unsubstituted mono- and/or di- and/or polyphosphates and/or complexes thereof with magnesium or zinc or copper or manganese are introduced as catalysts or transnitrosation inhibitors;

and/or thiourea, thioamides, methionine, arginine, peptides and/or acyclic and/or amide derivatives thereof of general formula X-Pept-Y, where X=H or acyl, Y=OH or -NH₂ or NHR or NR₁R₂, Pept=peptide comprising residues of methionine and/or aspartic acid and/or histidine and/or glutamic acid and/or arginine, and/or Pept comprises a fragment Met-Glu-His-Phe; and/or Pept = Met-Glu-His-Phe-Pro-Gly-Pro are introduced as catalysts or transnitrosation inhibitors;

and/or tocopherol and/or acyclic derivatives thereof are introduced as scavengers of free radicals;

and/or one or more thiols or dithiols or disulphides and/or one or more compounds from the group: dithiopropanol, dithiobutanol, lipoic acid, dihydrolipoic acid, cysteine, homocysteine, peptides comprising cysteine or cystine, acyclic and/or esteric and/or amide derivatives of cysteine or cystine or peptides comprising these amine acids, or protein are introduced as the targets for nitrosation and/or precursors thereof;

and/or one or more compounds from the group: urea, glutamic, aspartic, carbamic, amidophosphoric, sulfamic acids and salts thereof, asparagine, glutamine, primary amine and salts thereof, peptides comprising asparagine and/or glutamine are introduced as the targets for nitrosation with nitrogen release.

93. The method according to claim 86 **characterized in that** a patient is additionally administered catalysts or transnitrosation inhibitors.

112. A use of steam bath or sauna for modulating metabolism of nitrogen oxides by modifying NO oxidation rate and activation of biosynthesis thereof.